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Editorial review of the validation of thoracolumbar injury classification and severity score in the management of acute and subacute osteoporotic vertebral compression fractures

The management of osteoporotic vertebral compression fractures (OVCFs) poses significant challenges, particularly regarding the decision to pursue operative versus non-operative treatment. This study by Gill et al. [5], has utilized the Thoracolumbar Injury Classification and Scoring system (TLICS) as a method to assess the need for intervention, whether it be nonsurgical, percutaneous cement injection or surgery as a tool for treatment guidance [4]. The authors found that the TLICS score was able to predict treatment method successfully and that a score of 1 or 2 was predictive of satisfactory non-surgical management with cement augmentation or conservative care. Surgery was appropriate for a score of 4 or greater. An additional thought by the authors was to introduce a score of zero in the setting of a morphologically intact vertebra with edema only.

The authors should be congratulated in studying a distinct group of patients with thoracolumbar compression and burst injuries occurring frequently in the setting of osteopenia and osteoporosis. The medical community is still unclear on which particular patients may or may not benefit from a particular type of intervention. Another contribution of this paper is assessing the strengths and weakness of the TLICS system with reference to the Schnake et al. osteoporotic classification [1–3].

1. Strengths of the TLICS system

The TLICS system demonstrates clear utility in guiding treatment pathways for patients with OVCFs. The study found that the majority of patients had low TLICS scores (1 or 2), which aligned with the recommended treatment strategy of percutaneous cement injection or conservative treatment. This correlation indicates that TLICS can effectively stratify patients based on their injury severity and treatment needs, thereby facilitating decision-making in clinical practice. Its integration of clinical presentation, fracture morphology, and potential neurological involvement adds depth to its evaluative capacity.

Furthermore, the study highlights the system's strong inter-rater and intra-rater reliability, which is crucial for its adoption across various specialties. In a healthcare landscape where multidisciplinary collaboration is essential, a classification system that can be uniformly understood and applied enhances communication among providers.

2. Limitations of the TLICS system

Despite its strengths, the TLICS system is not without limitations. Notably, it does not adequately account for the degree of vertebral height loss, posterior wall retropulsion, or the degree of ligamentous disruption, which could mitigate against less invasive treatment methods. This gap underscores the need for further refinement of the TLICS criteria, especially in cases where metabolic bone disease is a prominent feature of a patients clinical profile.

Additionally, the study's small sample size limits the generalizability of its findings. While it confirms the utility of TLICS in predicting treatment pathways for patients with low scores, the lack of higher TLICS scores within the cohort raises questions about its usefulness in cases with neurologic compromise or potential posterior ligamentous injury in the setting of compromised vertebral body density.

3. Strengths of the Schnake et al. Classification system

In contrast, the Schnake et al. classification system, recently modified by the AO group, offers a detailed framework for assessing the need for operative fixation in OVCFs. Its comprehensive categorization, considering factors such as bone density, pain levels, and neurological deficits, provides a thorough basis for determining management strategies. By identifying specific fracture types and their associated treatment recommendations, this system gives greater granularity and aids spine surgeons in making informed decisions about surgical interventions.

4. Weaknesses of the Schnake et al. Classification system

However, the Schnake classification system is marked by complexity, which could hinder its widespread adoption among non-surgical specialties. The intricate criteria may create barriers for clinicians not specialized in spinal pathology, limiting its practical utility in a broader healthcare context. Moreover, the high operative fixation rates observed (30 % in the study) contrast sharply with the lower figures reported in U. S. practice (under 5 %). This discrepancy raises concerns about the potential over-treatment of OVCFs in certain world regions, highlighting the need for standardized approaches to avoid unnecessary surgical interventions.

5. Conclusion

In conclusion, both the TLICS and Schnake et al. classification systems have their respective strengths and weaknesses in managing OVCFs. The TLICS system stands out for its simplicity and ease of use, particularly in triaging patients for non-operative care. Conversely, the Schnake et al. system offers a more detailed framework for surgical decision-making, albeit at the cost of complexity.

As the field evolves, the integration of these systems into a cohesive

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approach that encompasses both simplicity and comprehensive assessment may be necessary. Future studies should focus on validating the TLICS score in larger cohorts, particularly in patients with higher TLICS scores, and exploring modifications that could enhance its applicability in the context of OVCFs. The aim should always be to optimize patient outcomes while minimizing unnecessary interventions in this vulnerable population.

Disclosures

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Declaration of generative AI and AI-assisted technologies in the writing process

During the preparation of this work the author(s) used ChatGPT to preliminarily review the cited articles and assist in the writing process. After using this tool/service, the author(s) reviewed and edited the content as needed and take(s) full responsibility for the content of the publication.

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